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**Title :** SPATIAL DISTRIBUTION PATTERNS OF SYMPATRIC IRRAWADDY AND INDO-PACIFIC HUMPBAC DOLPHINS IN NORTHEAST QUEENSLAND, AUSTRALIA

**Category :** Ecology

**Student :** Doctoral

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**Abstract :** Little is known on the ecology of sympatric dolphin species and the factors and mechanisms that influence their spatial distribution and mediate their coexistence. Throughout a substantial part of the range, of Irrawaddy dolphins (*Orcaella brevirostris*), in Australian coastal waters, Indo-Pacific humpback (*Sousa chinensis*) dolphins occur sympatrically. Previous research has suggested shallow inshore and estuarine waters as important habitats for both species, but comparative, quantitative studies on species-environment spatial relationships do not exist. Additionally, nothing is known of how or if these two species partition their habitat, as no studies have been carried out specifically to address this question in areas where both species co-occur.

We used vessel-based line transect surveys to assess the spatial distribution of Irrawaddy and Indo-Pacific humpback dolphins in two selected areas of northeast Queensland, Australia. Using non-parametric randomization techniques and a series of Mantel tests, we compared their spatial distribution relative to habitat variables. Our results demonstrate quantitatively that Irrawaddy and Indo-Pacific humpback dolphins' spatial distribution within coastal areas is influenced by their proximity to the mainland coast or islands, proximity to river mouths, and water depth. In addition, both species displayed similar and overlapping spatial distributions. It was not possible to detect differences in the two species' habitat use from this study.

The preference of both species for coastal, estuarine waters has important implications for their conservation. In areas of high human density, coastal and estuarine waters are often the focus of human settlement. Even in areas of low human density in northern Australia, threatening activities (e.g. gillnetting) tend to be concentrated in estuaries and in inshore waters close to the coast. The spatial analysis provided here can facilitate the identification of potential areas of critical habitat for both species.